

## ABSTRACT

DRUG CARRIERS

An aqueous composition comprises an amphiphilic block copolymer, having a hydrophilic block comprising pendant zwitterionic groups and a hydrophobic block, and a biologically active compound associated with the polymer. The polymer is preferably in the form of micelles, and preferably the biological active is a hydrophobic drug, for instance having a calculated or experimentally determined  $\log P$  of at least 1.0, where  $P$  is the octanol:water partition coefficient. The hydrophilic block is preferably formed from acrylic monomer including phosphorylcholine groups. The hydrophobic group is suitably formed from monomer which has groups which can be ionised at useful pH's, especially tertiary amine groups. Micelles may be formed by dissolving the block copolymer in aqueous solvent at a pH at which the amine groups are protonated then raising the pH to a value at which the amine groups are substantially deprotonated, whereupon micelles spontaneously form. The preformed micelles are then contacted with active, under conditions such that solubilisation of the active occurs. The active may be a water-insoluble drug, for instance for tumour treatment.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
12 September 2003 (12.09.2003)

PCT

(10) International Publication Number  
WO 03/074026 A1

(51) International Patent Classification<sup>7</sup>: A61K 9/107, (74) Agent: GILL JENNINGS & EVERY; Broadgate House,  
C08F 4/40 7 Eldon Street, London EC2M 7LH (GB).

(21) International Application Number: PCT/GB03/00958

(22) International Filing Date: 7 March 2003 (07.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02251505.0 7 March 2002 (07.03.2002) EP

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 03/074026 A1

(54) Title: DRUG CARRIERS COMPRISING AMPHIPHILIC BLOCK COPOLYMERS

(57) Abstract: An aqueous composition comprises an amphiphilic block copolymer, having a hydrophilic block comprising pendant zwitterionic groups and a hydrophobic block, and a biologically active compound associated with the polymer. The polymer is preferably in the form of micelles, and preferably the biological active is a hydrophobic drug, for instance having a calculated or experimentally determined logP of at least 1.0, where P is the octanol:water partition coefficient. The hydrophilic block is preferably formed from acrylic monomer including phosphorylcholine groups. The hydrophobic group is suitably formed from monomer which has groups which can be ionised at useful pH's, especially tertiary amine groups. Micelles may be formed by dissolving the block copolymer in aqueous solvent at a pH at which the amine groups are protonated then raising the pH to a value at which the amine groups are substantially deprotonated, whereupon micelles spontaneously form. The preformed micelles are then contacted with active, under conditions such that solubilisation of the active occurs. The active may be a water-insoluble drug, for instance for tumor treatment.